

## Student Peer Assessment on the Amphibious Dissection Practices

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### **Abstract**

The aims of this research to determine the implementation and the responses of students about peer assessment in assessing the performance of amphibious dissection practices. This research method was descriptive research with the subject of X1 and X3 grade students in SMAN 1 Ciomas. The result showed that both of the classes have the ability to peer assessment sufficient. Performance capability according to peer assessment and observer in superior class and regular class entered in very good category. Student's response on peer assessment was good. Students were enthusiastic in doing peer assessment because it directly involved in the assessment.

**Keywords:** Implementation of Practice, Peer Assessment, Performance

## INTRODUCTION

Teaching and learning process takes place to improve understanding of concepts, process skills, and develop a scientific attitude of students. Learning will be optimal if students are directly involved in the learning process (student centered). Students can be directly involved in the planning, implementation and assessment of learning programs. Implementation of a learning assessment is usually done by the teacher. The limited ability of teachers to observe each student causes teachers only assess the learning outcomes without looking the ability of students during the learning process, whereas the success of teaching is not only seen from the results of learning achieved by students, but based on the learning process as well. These constraints can be overcome by the implementation of peer assessment which is peer assessment as one method of assessment that can assist teachers in conducting the assessment. This is in accordance with the results of research conducted by Gunawan (2006) that ideally the test system is done by the students 50% (self assessment), by peer/friend 30% (peer assessment) and by teachers 20% (teacher assessment).

Biology is one of science that in learning can not be separated from practicum activities. Amphibious

dissection is a biological material in the concept of animalia that its application requires an application in order to understand the various types of information contained in the morphology, anatomy and physiology of amphibians. Implementation of practicum related to the material can improve the process skills of students, especially performance skills.

Performance skills can be measured by peer assessment through observation which is one of the important aspects of process skills in order for students to be able to make an assessment. Students can assess the performance of their own friends in the preparation, execution, and final stages of the lab. Assessment is done objectively and in accordance with the criteria contained in the observation sheet.

Handayani et al (2016) study about peer assessment, it concluded that the peer assessment online to assess the student's science attitude can use the facebook. Juhanda (2017) study about assessment, it concluded that the assessment of learning difficulties can reveal the mastery of a biology teacher candidate concept with different percentages. Based on that previous study, the researcher conducted a study on the application of peer assessment of student performance in biology concept.

This research will be conducted at SMAN 1 Ciomas, because it is one of the schools that already has sufficient laboratory facilities, but the facility has not been utilized optimally. Implementation of amphibious dissection has never been done in this school, whereas practicum can train students' basic skills in dissecting so that students will be familiar with more complex dissection. In addition, with the practice of dissection, the student's performance when they do practicum can be seen more clearly in the preparation stage, implementation and final stage of the laboratory. Based on these reasons, the researcher conducted a study on the application of peer assessment of student performance in SMAN 1 Ciomas.

## METHOD

The research method used is qualitative descriptive method. The research was conducted to collect data or information based on actual facts about peer assessment application in assessing student performance through peer assessment sheets of student performance, observer rating sheets, questionnaires and interviews. This study was conducted twice in accordance with the Learning Plan (RPP) that has been made.

The population in this study is the students of class X SMAN 1 Ciomas

which consists of six classes with the sample used class X1 and X3 as many as 32 students for each class. X1 and X3 are chosen based on purposive sampling, to be more visible how the application of peer assessment in the superior class and regular class. I define and classify the superior classes and regular classes based on data provided by teachers of Biology at SMAN 1 Ciomas.

Data were collected through several research instruments:

1. Student peer assessment sheets were used to assess student performance during the amphibious dissection. This sheet is a checklist with criteria filled out by the students. Formula of peer assessment (Purwanto, 2009):

$$NP = \frac{R}{SM} \times 100\% \quad (1)$$

Information:

NP = The percent value sought or expected

R = Number of assessment results according to the observer's assessment

SM = Total questions or assessment criteria.

The category scale of peer assessment can be seen on Table 1.

Table 1 Category Scale of Peer Assessment

Scale	Category
86% - 100%	Very Good
76% - 85%	Good
60% - 75%	Fair
55% - 59%	Less
< 54%	Very Less

2. Student performance capability observation sheet used by the observer to observe aspects of student performance that occur during practice. This observation sheet is used to determine the students' ability to do peer assessment. Formula of performance capability (Purwanto, 2009):

$$NP = \frac{R}{SM} \times 10 \quad (2)$$

Information:

S = Value sought

R = Number of scores of items or questions answered correctly

N = The maximum test score

The category scale of peer assessment can be seen on Table 2.

Table 2 Category Scale Student Performance Capability (Arikunto, 2006)

Scale	Category
8.1 – 10	Very Good
6.6 – 8.0	Good
5.6 – 6.5	Fair
4.1 – 5.5	Less
< 4.0	Very Less

3. Questionnaire students are a number of questions that are used to obtain information from respondents in the sense of a report about his personality or things that the respondent knows. This questionnaire is given to the students to know about the implementation of peer assessment and their responses to the application of peer assessment. Formula of questionnaire students (Sudjana, 2006):

$$NP = \frac{f}{N} \times 100\% \quad (3)$$

Information:

NP = Percentage of student response mode

f = Frequency of student answers to a questionnaire question

N = Total students

4. Student interview is a tool for the assessment of teaching and learning process at the time of this practice and the guidance can be used to obtain information about the opinion of the implementation of peer assessment.

## RESULT AND DISCUSSION

Implementation of peer assessment in assessing student performance can be seen based on student ability in peer assessment and student performance ability in conducting amphibious dissection. Student's ability in peer assessment can be analyzed from data of peer assessment sheets of student performance and observer performance observation sheet. The results of the assessment performed by the superior and regular class students compared with the results of the assessment conducted by the observer.

The category scale of peer assessment capability in the superior class can be seen on Table 3.

Table 3 Peer Assessment Capability in The Superior Class

No	Scale Peer Assessment Capability	Total Students	Percentage	Category
1	86%-100%	3	9.38	Very Good
2	76%-85%	6	18.75	Good
3	60%-75%	16	50	Fair
4	55%-59%	2	6.25	Less
5	< 54%	5	15.62	Very Less

The category scale of peer assessment capability in the regular class can be seen on Table 4.

Table 4 Peer Assessment Capability in The Regular Class

No	Scale Peer Assessment Capability	Total Students	Percentage	Category
1	86%-100%	4	12.5	Very Good
2	76%-85%	9	28.12	Good
3	60%-75%	16	50	Fair
4	55%-59%	3	9.38	Less
5	< 54%	0	0	Very Less

Based on the data it can be seen that both classes have peer assessment capability that fall into fair category with value 50%. The ability of peer assessment is sufficient because students already feel the understanding of peer assessment criteria assessed by the researchers. Assessment criteria are in the form of a performance assessment grid to be assessed during peer assessment. The results of the questionnaire also showed that 75% in the superior class and 87.5% of regular class students already know the assessment criteria used in the peer assessment, so that students feel quite capable in doing peer assessment.

Students assessed their friends without hesitation, as indicated by the

questionnaire that 62.5% in the superior class and 65.6% of regular grade students did not hesitate while doing peer assessment on their peers' performance. This is similar to the results of research by Hamzah (2009) which states that students can be more thorough in observing the work of his friend so as not to hesitate to give a bad value to his friends who do not do the job well. However, the percentage of peer assessment shows that a small percentage of students are still less able to do peer assessment. This can be because the students have never done peer assessment, so there are still some small students who feel difficulty in doing peer assessment in assessing the performance of their friend. Some student felt awkward, especially with the intra-group peer assessment. This was especially the case when students had to assess their fellow group members in a transparent system (Divaharan and Atputhasamy, 2002). In accordance with the results of the questionnaire indicating that 53.1% of students do not know the peer assessment, so the alternative assessment is still unfamiliar to them.

The results of students' performance capability during amphibious dissection with peer assessment can be measured by comparing the results of the assessment

performed by the students and the results of the assessment by the observer with the ideal answer that has been made by the researcher. Such performance includes the ability of students in doing the job, the quality of the work, the accuracy of completing the work and the ability to communicate.

The results of the calculation of overall performance capability based on observer and peer assessment can be seen in the Figure 1 and Figure 2.

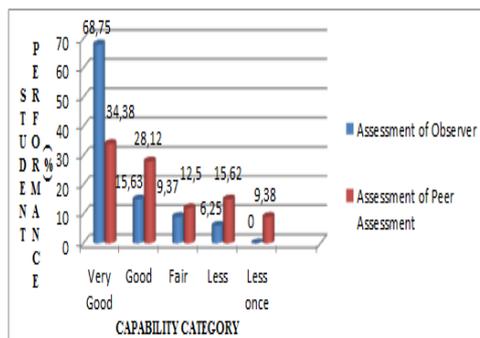


Figure 1 Performance Assessment by Observer and Peer Assessment in Superior Class

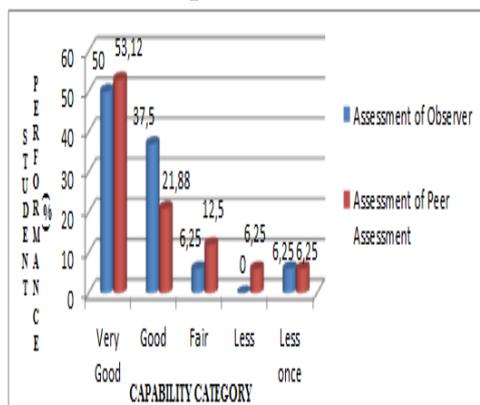


Figure 2 Performance Assessment by Observer and Peer Assessment in Regular Class

Figures 1 and Figures 2 shows that students' performance abilities in both classes, superior and regular classes

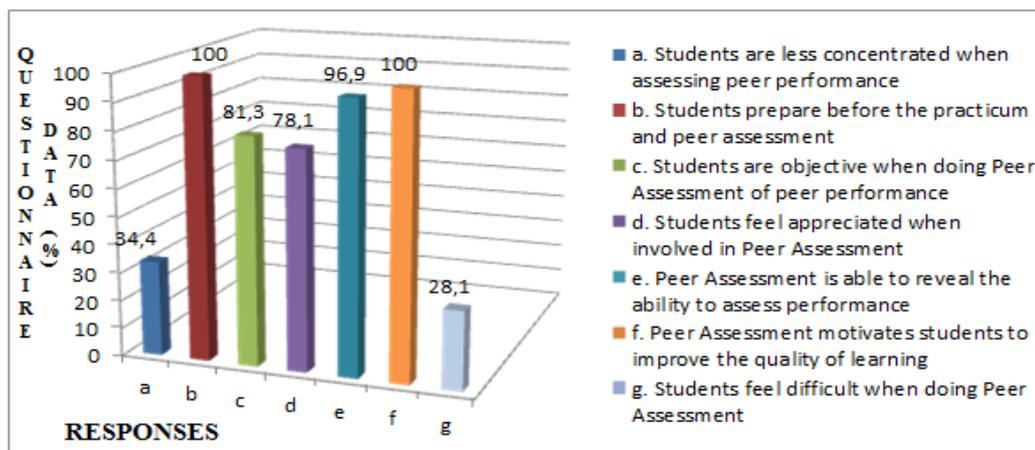
have excellent performance capabilities. In figure 1, Based on the percentage in the superior class, the observer's rating is higher than the student's assessment. This may be because the observer sees the performance performed by the students either, because the students have prepared themselves such as reading the material about amphibians and understanding the work procedures practicum that existed in the student worksheet before the implementation of the practicum took place. The student worksheet is given before the practicum activity. The questionnaire results also show that from both classes 100% of students have prepared before the practicum takes place. This can be seen from the interview that students read the material and see the video of the amphibian's dissection that has been studied before start of the lab. In addition, the observer considered that students are able to perform well because previously students have been aware of the performance appraisal criteria that will be assessed, so that students can easily understand what they will do during the lab. However, there are still a small number of students who are still less able to perform because students have never conducted a surgical workup, so students feel awkward with what to do when practicum and students

are not skilled in using dissection instruments.

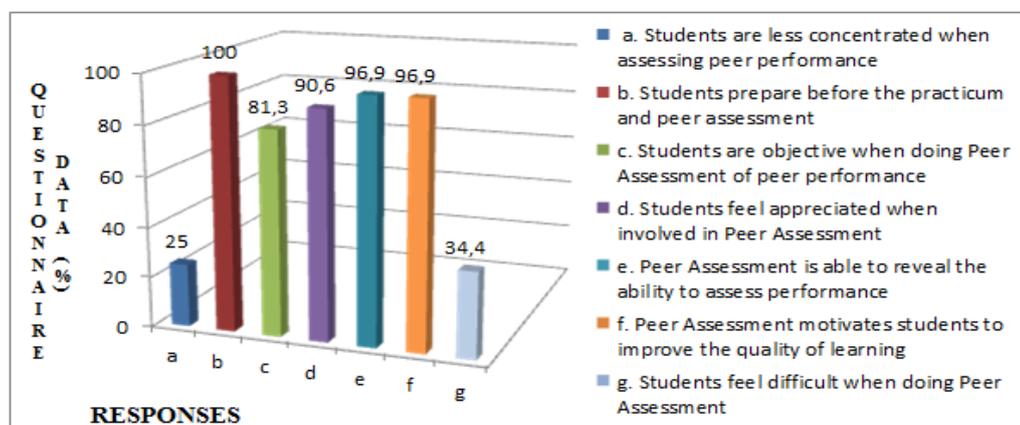
In Figure 2, the percentage of student ratings in the regular class is higher than the observer. This is because students feel that the performance performed by their friends is correct with the existing procedures. The questionnaire results also indicate that in the 100% and 96.9% of the regular grade students try to carry out the practicum correctly when knowing the peer assessment will be carried out. However, there are still a small number of students that is 34.4% superior

classes and 25% of regular classes who feel not free in assessing due to split concentration when assessing the performance of two friends (Figure 3 and 4). This is similar to the results of research Ariyanti (2005) that students must be in a state of concentration when conducting lab work.

Student responses on peer assessment were obtained from questionnaires and interviews. The results of questionnaires and interviews are outlined in the figures 3 and figures 4.



Figures 3 Student's Response to Peer Assessment Application in Superior Class



Figures 4 Student's Response to Peer Assessment Application in Regular Class

The students' responses in the superior classes and regular classes on peer assessment are good. Students feel enthusiastic about the implementation of peer assessment. This can be seen from the assessment that the students are quite capable in doing peer assessment. Students feel valued in terms of assessment by peer assessment because it can be directly involved in the assessment, but a small percentage of students still have difficulty in peer assessment because they feel not yet understand the aspects of performance to be assessed.

The result of the interview shows that peer assessment can give motivation to the students so that they can prepare before the practicum and try to learn actively during the lab and through peer assessment application, the students can know their performance ability in doing the lab work. Peer-assessment improves learning of student through a sense of ownership and responsibility, motivation, and reflection of the students' own learning (Karami and Rezaei, 2015).

### CONCLUSION

Based on the result of the research, it can be concluded that superior class and regular class have peer assessment capability into enough category. Performance capability

according to peer assessment and observer in superior class and regular class entered in very good category. Student's response on peer assessment is good, it shows from result of questionnaire that 85.95% student feel enthusiastic in doing peer assessment. Students feel directly involved in the assessment and students are motivated to improve the quality of learning outcomes.

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